

[0034] As a person skilled in the art will recognize from the previous detailed description and from the figures and claims, modifications and changes can be made to the preferred embodiments of the invention without departing from the scope of this invention defined in the following claims.

We claim:

1. A method for actuating a tactile interface layer of a device that defines a surface with a deformable region, comprising the steps of:

detecting a gesture of the user along the surface of the tactile interface layer that includes a movement of a finger of the user from a first location on the surface to a second location on the surface;

interpreting the gesture as a command for the deformable region; and

manipulating the deformable region of the surface based on the command.

2. The method of claim 1, wherein the tactile interface layer includes a volume of fluid and a displacement device, wherein the step of manipulating the deformable region of the surface includes manipulating the fluid within the tactile interface layer to deform a particular region of the surface into a formation distinguishable from the surface.

3. The method of claim 2, wherein the step of manipulating the fluid within the tactile interface layer includes actuating the displacement device to manipulate the fluid within the tactile interface layer.

4. The method of claim 2, wherein the tactile interface layer further includes a valve that directs the fluid within the tactile interface layer, and wherein the step of manipulating the fluid within the tactile interface layer includes actuating the valve to direct fluid within the tactile interface layer.

5. The method of claim 1, wherein the step of manipulating the deformable region includes deforming the region into a formation tactilely distinguishable from another region of the surface.

6. The method of claim 1, wherein the step of manipulating the deformable region includes changing the deformation of the deformable region.

7. The method of claim 6, wherein the step of changing the deformation includes changing the height of the deformation relative to another region of the surface.

8. The method of claim 6, wherein the step of changing the deformation includes changing the stiffness of the deformation.

9. The method of claim 6, wherein the step of changing the deformation includes changing the shape of the deformation.

10. The method of claim 9, wherein the step of changing the shape of the deformation includes enlarging the overall surface area of the deformation.

11. The method of claim 6, wherein the step of changing the deformation includes changing the location of the deformation relative to the surface.

12. The method of claim 1, further comprising the step of receiving a user preference for a particular interpretation of a gesture as a command.

13. The method of claim 1, wherein the gesture further includes the movement of a second finger of the user from a third location on the surface to a fourth location on the surface.

14. The method of claim 13, wherein the finger is a finger of a first user and the second finger is a finger of a second user.

15. The method of claim 13, wherein the second and fourth locations are closer in proximity along the surface than the first and third locations.

16. The method of claim 13, wherein the first and third locations are substantially equal in proximity along the surface as the second and fourth locations.

17. The method of claim 16, wherein the fingers of the user rotate about a point substantially in the middle of the distance between the first and third locations to the second and fourth locations.

18. The method of claim 13, wherein the movement of the first finger from the first location to the second location is substantially concurrent with the movement of the second finger from the third location to the fourth location.

19. The method of claim 1, wherein the step of detecting a gesture includes deforming the region into a formation tactilely distinguishable from the surface and detecting a gesture relative to the tactilely distinguishable formation.

20. The method of claim 19, wherein the step of detecting a gesture relative to the tactilely distinguishable formation includes detecting a gesture relative to the perimeter of the tactilely distinguishable formation.

21. The method of claim 19, wherein the step of detecting a gesture relative to the tactilely distinguishable formation includes detecting a gesture that applies a force along the surface of the tactilely distinguishable formation.

22. The method of claim 21, wherein the step of detecting a gesture that applies a force along the surface of the tactilely distinguishable formation includes detecting a gesture that applies a substantially twisting force on at least two locations along the surface of the tactilely distinguishable formation.

23. The method of claim 1, further comprising the step of interpreting the gesture as a command for the device.

24. The method of claim 23, wherein the particular command includes selecting an option for a function of the device.

25. The method of claim 24, wherein the step of selecting an option includes selecting an option from a range of options, wherein the range of options includes a device function selected from the group consisting of: volume, brightness, track number, and intensity.

26. The method of claim 1, further comprising the step of storing commands for particular gestures in a storage device, wherein interpreting the gesture as a command for the deformable region includes retrieving the command for a detected gesture from the storage device.

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